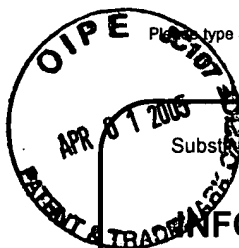


If the sum of \$180.00 is due under 37 CFR § 1.17(p) pursuant to § 1.97, the Commissioner is hereby authorized to charge this fee, and any other fee necessary to make this submission timely, to the Deposit Account No. 20-0782/AMAT/5335.Y1/KMT.

Respectfully submitted,



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PTO/SB/08a (08-03)

Approved for use through 07/31/2006. OMB 0651-0031
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1

of 9

Application Number	10/625,480
Filing Date	July 22, 2003
First Named Inventor	Chen, et al.
Group Art Unit	2818
Examiner Name	Phuc T. Dang
Attorney Docket Number	AMAT/5335.Y1/CPI/COPPER/PJS
Submission Date	April 1, 2005

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	A1	US-4486487	12/4/1984	Suntola, et al.	
	A2	US-5306666	4/26/1994	Izumi, et al.	
	A3	US-5374570	12/20/1994	Nasu, et al.	
	A4	US-5503875	4/2/1996	Imai, et al.	
	A5	US-5526244	6/11/1996	Bishop	
	A6	US-5711811	1/27/1998	Suntola, et al.	
	A7	US-5916365	6/29/1999	Sherman	
	A8	US-6015590	1/18/2000	Suntola, et al.	
	A9	US-6107208	8/22/2000	Cheng, et al.	
	A10	US-6139700	10/31/2000	Kang, et al.	
	A11	US-6174809	1/16/2001	Kang, et al.	
	A12	US-6197683	3/6/2001	Kang, et al.	
	A13	US-6200893	3/12/2001	Sneh	
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	A22	US-6348376	2/19/2002	Lim, et al.	
	A23	US-6358829	3/19/2002	Yoon, et al.	
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	A25	US-6391785	5/21/2002	Satta, et al.	
	A26	US-6391803	5/21/2002	Kim, et al.	
	A27	US-6399491	6/4/2002	Jeon, et al.	
	A28	US-6416577	7/9/2002	Suntola, et al.	

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**INFORMATION DISCLOSURE
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Sheet

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of

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Application Number

10/625,480

Filing Date

July 22, 2003

First Named Inventor

Chen, et al.

Group Art Unit

2818

Examiner Name

Phuc T. Dang

Attorney Docket Number

AMAT/5335.Y1/CPI/COPPER/PJS

Submission Date

April 1, 2005

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	A29	US-6416822	7/9/2002	Chiang, et al.	
	A30	US-6428859	8/6/2002	Chiang, et al.	
	A31	US-6451119	9/17/2002	Sneh, et al.	
	A32	US-6451695	9/17/2002	Sneh	
	A33	US-6458701	10/1/2002	Chae, et al.	
	A34	US-6468924	10/22/2002	Lee, et al.	
	A35	US-6475276	11/5/2002	Elers, et al.	
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	A37	US-6478872	11/12/2002	Chae, et al.	
	A38	US-6482733	11/19/2002	Raaijmakers, et al.	
	A39	US-6495461	12/17/2002	Tsubouchi, et al.	
	A40	US-6511539	1/28/2003	Raaijmakers	
	A41	US-6534395	3/18/2003	Werkhoven, et al.	
	A42	US-6548424	4/15/2003	Putkonen	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet

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Application Number

10/625,480

Filing Date

July 22, 2003

First Named Inventor

Chen, et al.

Group Art Unit

2818

Examiner Name

Phuc T. Dang

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		Number-Kind Code ² (if known)			
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	A84	US-20020081844	6/27/2002	Jeon, et al.	

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		Filing Date	July 22, 2003
		First Named Inventor	Chen, et al.
		Group Art Unit	2818
		Examiner Name	Phuc T. Dang
		Attorney Docket Number	AMAT/5335.Y1/CPI/COPPER/PJS
Sheet 4	of 9	Submission Date	April 1, 2005

U.S. PATENT DOCUMENTS

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		Number-Kind Code ² (if known)			
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	A86	US-20020086507	7/4/2002	Park, et al.	
	A87	US-20020094689	7/11/2002	Sandhu, et al.	
	A88	US-20020104481	7/18/2002	Bachhofer, et al.	
	A89	US-20020106536	8/8/2002	Lee, et al.	
	A90	US-20020117399	8/29/2002	Chen, et al.	
	A91	US-20020135071	9/26/2002	Kang, et al.	
	A92	US-20020144655	10/10/2002	Chiang, et al.	
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	A100	US-20020177282	11/28/2002	Song	
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	A102	US-20020187256	12/12/2002	Elers, et al.	
	A103	US-20020187631	12/12/2002	Kim, et al.	
	A104	US-20020197402	12/26/2002	Chiang, et al.	
	A105	US-20020197863	12/26/2002	Mak, et al.	
	A106	US-20030013300	1/16/2003	Byun	
	A107	US-20030013320	1/16/2003	Kim, et al.	
	A108	US-20030031807	2/13/2003	Elers, et al.	
	A109	US-20030032281	2/13/2003	Werkhoven, et al.	
	A110	US-20030042630	3/6/2003	Babcoke, et al.	
	A111	US-20030049931	3/13/2003	Byun, et al.	
	A112	US-20030049942	3/13/2003	Haukka, et al.	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Application Number

10/625,480

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Group Art Unit

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	A114	US-20030072884	4/17/2003	Zhang, et al.	
	A115	US-20030072975	4/17/2003	Shero, et al.	
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**INFORMATION DISCLOSURE
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Sheet 6

of 9

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First Named Inventor	Chen, et al.
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	A141	US-20030186561	10/2/2003	Law, et al.	
	A142	US-20030189232	10/9/2003	Law, et al.	
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Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)				
	B1	EP 1 167 569	1/2/2002	IPS LIMITED		
	B2	GB 2 355 727	5/2/2001	SAMSUNG ELECTRONICS CO., LTD		
	B3	JP 07-300649	11/14/1995	KOBE STEEL LTD		
	B4	JP 01-143221	6/5/1989	NEC CORP		
	B5	JP 02-246161	10/1/1990	FUJITSU LTD		

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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Application Number	10/625,480
		Filing Date	July 22, 2003
		First Named Inventor	Chen, et al.
		Group Art Unit	2818
		Examiner Name	Phuc T. Dang
		Attorney Docket Number	AMAT/5335.Y1/CPI/COPPER/PJS
Sheet 7	of 9	Submission Date	April 1, 2005

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ² -Number ³ -Kind Code ⁵ (if known)				
	B6	JP 10-308283	11/17/1998	DENSO CORP (US)		
	B7	JP 2000-178735	6/27/2000			
	B8	JP 2000-31387	1/28/2000	FUJI ELECTRIC CO LTD		
	B9	JP 2000-58777	2/25/2000	SAMSUNG ELECTRONICS CO., LTD		
	B10	JP 2001-111000	4/20/2001			
	B11	JP 2001-172767	6/18/2002	ASM MICROCHEMISTRY OY		
	B12	JP 2001-220294	8/14/2001	DENSO CORP		
	B13	JP 2001-254181	9/18/2001	TOKYO ELECTRON LTD		
	B14	WO 00/15865	3/23/2000	ASM MICROCHEMISTRY LTD		
	B15	WO 00/16377	3/23/2000	GENITECH CO., LTD.		
	B16	WO 00/54320	9/14/2000	GENUS, INC.		
	B17	WO 00/63957	10/26/2000	GENITECH CO., LTD.		
	B18	WO 00/79576	12/28/2000	GENITECH INC.		
	B19	WO 01/15220	3/1/2001	ASM AMERICA, INC.		
	B20	WO 01/17692	3/15/2001	ASM AMERICA, INC.		
	B21	WO 01/27346	4/19/2001	ASM MICROCHEMISTRY OY		
	B22	WO 01/27347	4/19/2001	ASM MICROCHEMISTRY OY		
	B23	WO 01/29280	4/26/2001	ASM AMERICA, INC.		
	B24	WO 01/29891	4/26/2001	ASM AMERICA, INC.		
	B25	WO 01/29893	4/26/2001	ASM AMERICA, INC.		
	B26	WO 01/66832	9/13/2001	ASM AMERICA, INC.		
	B27	WO 02/01628	1/3/2002	APPLIED MATERIALS, INC.		
	B28	WO 02/45167	6/6/2002	ASM MICROCHEMISTRY OY		
	B29	WO 02/45871	6/13/2002	ANGSTRON SYSTEMS, INC.		
	B30	WO 02/67319	8/29/2002	ASM MICROCHEMISTRY OY		
	B31	WO 96/17107	6/6/1996	MIKROKEMIA OY		
	B32	WO 98/51838	11/19/1998	APPLIED MATERIALS, INC.		

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Substitute for form 1449B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Application Number	10/625,480
		Filing Date	July 22, 2003
		First Named Inventor	Chen, et al.
		Group Art Unit	2818
		Examiner Name	Phuc T. Dang
		Attorney Docket Number	AMAT/5335.Y1/CPI/COPPER/PJS
Sheet 8	of 9	Submission Date	April 1, 2005

FOREIGN PATENT DOCUMENTS

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		Country Code ² -Number ⁴ -Kind Code ⁵ (if known)				
	B33	WO 99/01595	1/14/1999	NESTE OY		
	B34	WO 99/29924	6/17/1999	NESTE OYJ		

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
	C1	George, et al. "Surface Chemistry for Atomic Layer Growth," J. Phys. Chem. 1996, 100, pp. 13121-13131	
	C2	Hwang, et al. "Nanometer-Size α -PbO ₂ -type TiO ₂ in Garnet: A Thermobarometer for Ultrahigh-Pressure Metamorphism," Science Vol. 288 (14 Apr 2000)	
	C3	Klaus, et al. "Atomic Layer Deposition of SiO ₂ Using Catalyzed and Uncatalyzed Self-Limiting Surface Reactions," Surface Review and Letters, Vol. 6, Nos. 3 & 4 (1999) 435-448	
	C4	Lee, et al. "Cyclic Technique for the Enhancement of Highly Oriented Diamond Film Growth," Thin Solid Films 303 (1997) pp. 264-269	
	C5	Martensson, et al. "Use of Atomic Layer Epitaxy for Fabrication of Si/TiN/Cu Structures," J. Vac. Sci. & Tech. B, Vol. 17, No. 5, (Sept. 1999) pp.2122-2128	
	C6	Min, et al. "Atomic Layer Deposition of TiN Thin Films by Sequential Introduction of Ti Precursor and NH ₃ ," Mat. Res. Soc. Symp. Proc. Vol. 514 (1998)	
	C7	Min, et al. "Chemical Vapor Deposition of Ti-Si-N Films with Alternating Source Supply," Mat. Res. Soc. Symp. Proc. Vol. 564 (1999) pp. 207-210	
	C8	Min, et al. "Metal-organic Atomic-layer Deposition of Titanium-silicon-nitride Films," Applied Physics Letters, Vol. 75, No. 11 (11 Sep 1999) pp. 1521-1523	
	C9	Niinisto, et al. "Synthesis of Oxide Thin Films and Overlayers by Atomic Layer Epitaxy for Advanced Applications," Materials Science and Engineering B41 (1996) 23-29	
	C10	Proceedings of the ICEEE 1998 International Interconnect Technology Conference - San Francisco, California, June 1-3, 1998	
	C11	Ritala, et al. "Atomic Force Microscopy Study of Titanium Dioxide Thin Films Grown by Atomic Layer Epitaxy," Thin Solid Films, Vol. 228, No. 1-2 (15 May 1993), pp.32-35	
	C12	Ritala, et al. "Atomic Layer Epitaxy Growth of TiN Thin Films From TiI ₄ and NH ₃ ," J. Electrochem. Soc., Vol. 145, No. 8 (Aug, 1998) pp. 2914-20	
	C13	Ritala, et al. "Atomic Layer Epitaxy Growth of TiN Thin Films," J. Electrochem. Soc., Vol. 142, No. 8, August 1995	

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				First Named Inventor	Chen, et al.
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Sheet	9	of	9	Submission Date	April 1, 2005

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	C14	Ritala, et al. "Effects of Intermediate Zinc Pulses on Properties of TiN and NbN Films by Atomic Layer Epitaxy," Applied Surface Science, Vol. 120, No. 3-4, (Dec. 1997), pp. 199-212	
	C15	Ritala, et al. "Growth of Titanium Dioxide Thin Films by Atomic Layer Epitaxy," Thin Solid Films, Vol. 225, No. 1-2 (25 March 1993) pp. 288-95	
	C16	Ritala, et al. "Perfectly Conformal TiN and Al ₂ O ₃ Films Deposited by Atomic Layer Deposition," Chem. Vap. Deposition 1999, 5, No. 1	
	C17	Ritala, et al. "Surface Roughness Reduction in Atomic Layer Epitaxy Growth of Titanium Dioxide Thin Films," Thin Solid-Films, Vol. 249, No. 2 (15 Sept. 1994), pp. 155-62	
	C18	Rossnagel, et al. "Plasma-enhanced Atomic Layer Deposition of Ta and Ti for Interconnect Diffusion Barriers," J. Vacuum Sci. & Tech. B., Vol. 18, No. 4 (July 2000), pp. 2016-20	

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